

REMARKS

1. Information Disclosure Statement

Enclosed is an Information Disclosure Statement (IDS) identifying documents that were cited in the International Search Report/Written Opinion (ISR/WO) for corresponding International Application No. PCT/US05/012058, for which the U.S. Patent and Trademark Office (USPTO) stands as the International Searching Authority.

2. Drawings

The Examiner has objected to the drawings for not showing "a component to adjust the charge threshold based on ambient temperature." FIG. 8 has been changed to FIG. 8a and FIG. 8b has been added to show the resistor R2 as a thermistor. Two corresponding replacement sheets of drawings are enclosed. Support for the addition of FIG. 8b may be found in the specification at page 16, lines 20-30. It is noted that thermistors, as used in this portion of the application, are widely regarded as resistors that have thermal response properties (see, for example, the enclosed article titled "Thermistor" downloaded from the Internet at <http://en.wikipedia.org/wiki/Thermistor> on June 6, 2006). Accordingly, reconsideration and withdrawal of the drawing objection is requested.

Also, in figure 1 (appearing on the same sheet as figure 8a), the spelling of the word "Receiver" (block 12) has been corrected.

Approval of the drawing changes is respectfully requested.

3. Specification

The paragraphs starting at page 3, line 18, page 7, line 1, page 11, line 25, and page 16, line 20 were amended to accommodate the addition of figure 8b.

The paragraph starting at page 8, line 3 was amended to change two instances of the term "core 42" to "coil 42," thereby correcting obvious typographical errors and to increase consistent use of reference numeral 42 with the balance of the application.

For example, attention is directed to page 7, line 8 where the term "coil 42" is first used and the remainder page 8 describing the relationship of the coil 42 and the core 58.

4. Claim Rejections - 35 U.S.C. § 112

Claim 16 has been rejected under 35 U.S.C. § 112, first paragraph. The Examiner contends that the specification and drawings do not describe how or in what manner a component performs the function recited by claim 16. The Examiner's attention is directed to page 16, line 20-30 where it is clearly described that the claimed function may be carried out by a thermistor. Figure 8b has been added to illustrate a thermistor, even though it is submitted that original figure 8 and the specification set forth a description of the subject matter of claim 16 with sufficient detail so that one of ordinary skill in the art would have been able to make and use the invention without undue experimentation. Accordingly, reconsideration and withdrawal of the rejection of claim 16 under 35 U.S.C. § 112 is respectfully requested.

5. Claim Rejections - 35 U.S.C. § 103

Claims 1-15 have been rejected under 35 U.S.C. § 103(c) over U.S. Patent No. 4,962,708 to Synder in view of U.S. Patent No. 6,867,512 to Delaire and further in view of U.S. Patent No. 6,546,873 to Andrejkovics.

Independent claim 1 is directed to a detonation initiator and recites the features of a linear actuator that is activated by the discharging of capacitor. The claimed capacitor is charged with an electrical pulse that is received by the detonator initiator.

As claimed, discharging of the capacitor occurs when the capacitor reaches a charge threshold. The charge on the capacitor is monitored by an electrical circuit that derives all operational power from the pulse that charges the capacitor. Also, the electrical circuit includes a digital logic gate that is configured as a comparator to compare a representation of the charge of the capacitor with a reference voltage established from the electrical pulse used to charge the capacitor.

These features are novel and are unobvious over the art of record. In particular, none of Synder, Delaire, Andrejkovics or their combination disclose the claimed electrical circuit for monitoring charge on a capacitor and discharging the capacitor to drive a linear actuator.

It will be appreciated that the claimed combination of features allows for remote detonation of an explosive charge using, in part, an electrical circuit that derives operating power from an electrical pulse input to the detonation initiator. In this regard, no additional power supply sources or circuitry is needed for the detonation initiator. Further, the claimed arrangement allows for sufficient charge to be stored by the capacitor even when a less than optimal electrical pulse can be delivered to the detonation initiator (e.g., a reduction in pulse voltage as may be caused by degraded batteries of a radio receiver assembly used to supply the pulse). Even in this situation, the stored charge may be converted into enough mechanical energy to initiate a desired detonation.

These features have particular advantage when the electrical pulse is of limited duration, such as when U.S. military personal are using a standard issue radio receiver to supply the electrical pulse. One such standard issue radio receiver is disclosed in the patent to Andrejkovics, which has been applied by the Examiner as part of the obviousness rejection. In Andrejkovics, however, it is expected that "a fresh alkaline or lithium battery set allows a receiver to remain operational for 15 days" (column 5, lines 65-66. As a result of the claimed invention, soldiers in the battlefield may find a reduced reliance on fresh batteries when attempting to initiate a detonation, which is a distinct improvement in the art.

The Examiner relies on Andrejkovics for disclosing electrical circuitry components of the claimed invention. However, even if one were to assume that motivation exists to combine the references in the proposed manner and that one were to make such a combination, the specifically selected arrangement recited in claim 1 would not result.

Moreover, in the passage cited by the Examiner at column 7, lines 45-62 and in figure 5, there is no disclosure of that which is claimed. In this passage, Andrejkovics describes components that require a power source (e.g., a microprocessor based controller and a RF receiver, among other components) and a firing circuit that has no relevancy as a teaching description when compared to the claimed electrical circuit.

As a result, claim 1 and claims 2-15 depending from claim 1 recite patentable subject matter.

Claim 16 has been rejected under 35 U.S.C. § 103(a) over Synder, Delaire and Andrejkovics, and further in view of U.S. Patent No. 3,792,663 to Schneider. Claim 16 depends from claim 1 and is considered allowable for at the reasons set forth above.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) is respectfully requested.

6. Conclusion

In light of the foregoing, it is respectfully submitted that the present application is in condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned representative to expedite prosecution of the present application.

If there are any fees resulting from this communication, please charge same to our Deposit Account No. 18-0988, our Order No. 04E007.

Respectfully submitted,

RENNER, OTTO, BOISSELLE & SKLAR, LLP

By 
M. David Galin; Reg. No. 41,767

1621 Euclid Ave. - 19th Floor
Cleveland, Ohio 44115
Tel.: (216) 621-1113; Fax (216) 621-6165

R:\DGal\RAYT\P0254us\RAYTP0254US.R02.wpd